

TRANSLATION OF CLAIMS AS ANNEXED TO INTERNATIONAL  
PRELIMINARY EXAMINATION REPORT

1. A projection display device comprising:
  - means (6) of projecting an image onto a screen (10) having an output axis called a main axis (AA');
  - the screen (10) comprising at least one optical plate (12; 32), characterized in that the optical plate (12; 32) comprises:
    - on a first side, a first set of optical elements (14; 34) designed to bend rays ( $R_i$ ) received from said image projection means into a beam of rays ( $R_{int}$ ) that are essentially parallel to a first direction in a plane containing the main axis (AA'),
    - on a second side, a second set of prismatic elements (16, 36) with identical section or a holographic device for bending said beam in a second direction ( $R_C$ ) different from the first direction ( $R_{int}$ ).
2. The device as claimed in claim 1, characterized in that the second side comprises a second set of prismatic elements with identical section, at least some of the prismatic elements (16; 36) comprising a first side (26; 42) having an orientation such that the rays in the first direction ( $R_{int}$ ) are refracted in the second direction ( $R_C$ ).
3. The device as claimed in claim 2, characterized in that at least some of the prismatic elements comprise a second side having a side that is essentially parallel to said side of the first optical element in said plane.
4. The device as claimed in claim 1, characterized in that the second side includes a holographic device to bend the beam in the second direction ( $R_C$ ).

5. The device as claimed in any one of claims 1 to 4, characterized in that said plate has symmetry of revolution about the main axis (AA') and in which the second direction ( $R_C$ ) is directed essentially in line with the main axis (AA').
6. The device as claimed in one of claims 1 to 5, characterized in that the optical elements (14) are designed to bend the rays from the source by refraction.
7. The device as claimed in one of claims 1 to 5, characterized in that the optical elements (34) each include a side (38) designed to reflect the rays ( $R_I$ ) from the source in the first direction ( $R_{int}$ ).
8. The device as claimed in any one of claims 1 to 7, characterized in that the first set of optical elements is designed to bend rays received from projection means into a beam of rays forming an angle less than or equal to  $3^\circ$  with the first direction.
9. The device as claimed in any one of claims 1 to 8, characterized in that the second direction forms an angle greater than or equal to  $10^\circ$  with the first direction.
10. The display device as claimed in any one of claims 1 to 9, characterized in that the projection means (6) are such that the rays ( $R_I$ ) are received by the optical plate (12) with orientations ( $\theta$ ) relative to the general direction of the optical plate (12) varying over a continuous range of non-zero orientations relative to the main axis (AA') and in which the first direction ( $R_{int}$ ) corresponds to one ( $\theta_{int}$ ) of the orientations of said continuous range.

11. An optical plate (12; 32) for projection device comprising image projection means having an output axis called a main axis (AA') as claimed in any one of claims 1 to 10, characterized in that said plate comprises, on a first side, a first set of optical elements (14; 34) designed to bend rays ( $R_I$ ) received from said projection means into a beam of rays ( $R_{int}$ ) that are essentially parallel to a first direction in a plane containing the main axis (AA'),
- on a second side, a second set of prismatic elements (16, 36) with identical section or a holographic device for bending said beam in a second direction ( $R_C$ ) different from the first direction ( $R_{int}$ ).